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# Coal Taxonomy Thesaurus of Terms

December 1981



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U.S. DEPARTMENT OF COMMERCE

NATIONAL BUREAU OF STANDARDS



NBSIR 81-2405

## **COAL TAXONOMY THESAURUS OF TERMS**

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December 1981

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## ABSTRACT

This report contains a thesaurus to help public and private users find and retrieve information on regulations and standards which apply both to coal technology and to coal-related environmental, safety and health issues. Document indexers may also find it helpful. The thesaurus was designed to be structurally compatible with the document storage and retrieval systems now in use by the Department of Energy (DOE) so that absorption into DOE's system could be convenient and practical. The arrangement of the thesaurus, the code system that represents the terms used in the indexing and search processes, and instructions for its use are described. The hierarchies of index terms in the thesaurus are illustrated.



## ACKNOWLEDGEMENTS

The authors acknowledge with thanks the valuable assistance and cooperations of the staff of Ideamatics, Inc. with whom they worked on the Coal Taxonomy project. They also wish to thank Mr. Terrance N. Troy, leader of the SIS Group in the Office of Engineering Standards (OES) at the National Bureau of Standards, and Mr. Robert Poe, head of the Standards Group of the Department of Energy for their direction and encouragement.

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## P A R T   A

### I.   INTRODUCTION

This report is submitted in partial fulfillment of Tasks 1.1.2a and 1.1.3 of the Department of Energy (DOE) project: Energy Standards Coordination and Development A-046. The work was done under Task Order number A-046 OES of Interagency Agreement number EA-77-01-6010 between the DOE Division of Operational and Environmental Safety (DOE/OES) and the National Bureau of Standards (NBS) Office of Engineering Standards (OES). Under this project, the NBS provides support to DOE in the planning, development and implementation of DOE Standards Management Support Systems to assist DOE's technical divisions in planning, coordinating and operating their individual standards-related program activities. The filing and retrieval of documents bearing on energy programs is such an activity.

The thesaurus in Part B of this report has a role similar to the familiar subject card index in a library. Its purpose is to guide a library user from a relatively unconstrained set of terms and concepts that apply to documents in the specialized field of the library to a much smaller set of terms and concepts that are actually used for indexing and retrieval purposes. Indexers use the smaller set called authority terms, or really the three-character codes for these terms, to describe the contents of documents in the library. The codes are convenient for computer filing, search and retrieval, but the same functions could be performed at the manual level with the authority terms themselves. The non-authority terms are called thesaurus terms. This group contains synonyms and other possibly more familiar terms that are treated as equivalents to authority terms for indexing purposes. The sole purpose of thesaurus terms is to help a user

move from his or her initial frame of reference to that used by the library. Of course, the user could save time by beginning with authority terms, either by accident or design.

This particular thesaurus is designed for a computer-based library that specializes in laws, regulations, standards and related documents bearing on environmental, safety and health (ES&H) concerns of the US coal industry. The design of the thesaurus and of the system of which it is a part is open-ended in the sense that terms may be added to accommodate new technologies and even other energy sources. Furthermore, one of the design principles was to achieve as much compatibility as practical with document storage and retrieval systems now in use by DOE so that absorption into DOE's system could be convenient and practical.

## II. TECHNICAL DISCUSSION

This thesaurus is designed as an aid in document retrieval, although document indexers may also find it helpful. Details of the indexing process are described in "Coal Taxonomy Indexing Methodology - Final Report," Ideamatics, Inc., March 1981 (Reference 1).

1. A decision to include a document in the system is made if a review shows that its content is sufficiently germane to the purpose of the collection.

2. An accession number is assigned to the document. This number is unique to that document and serves as the file reference for information about the document. An accession number is never reused.

3. Indexing consists of assigning codes in seven categories (called facets) to the accession number. The facets are Source Type, Specific Source, Jurisdiction, Compliance Population, Functional Criteria, Coal, and Environmental, Safety and Health (ES&H). Only one term per facet is allowed for the first five facets, but more than one term is permitted, and encouraged, for the Coal and ES&H facets. The thesaurus in Part B covers Coal and ES&H terms that were considered useful in indexing a test sample of documents, and also includes a limited number of terms that are expected to be useful, but that were not needed in the test. Procedures for adding terms are described in Reference 1.

There are two levels of Coal and ES&H terms in the thesaurus. These are defined in Reference 1 as "authority" terms and "thesaurus" terms. Each authority term has its own three-character alphanumeric code that represents the collection of concepts covered by the term in the indexing and search

processes. Coal terms have a letter as the first character in their codes, and ES&H codes have a leading digit. For example, the first authority term in Part B is "10M abandoned mine." The code "10M" represents the term, or really the concept, "abandoned mines." Thus, 10M would be used in the indexing of a document that involved the concept of abandoned mines, whether or not those exact words appear in the document. The authority codes each contain at least one alphabetic and one numeric character; the middle character of the three may be either a letter or a number. Capital letter "O" is used in only one case, in the code for oxygen, for which the code is "capital O, zero, zero." In all other cases "O" stands for zero.

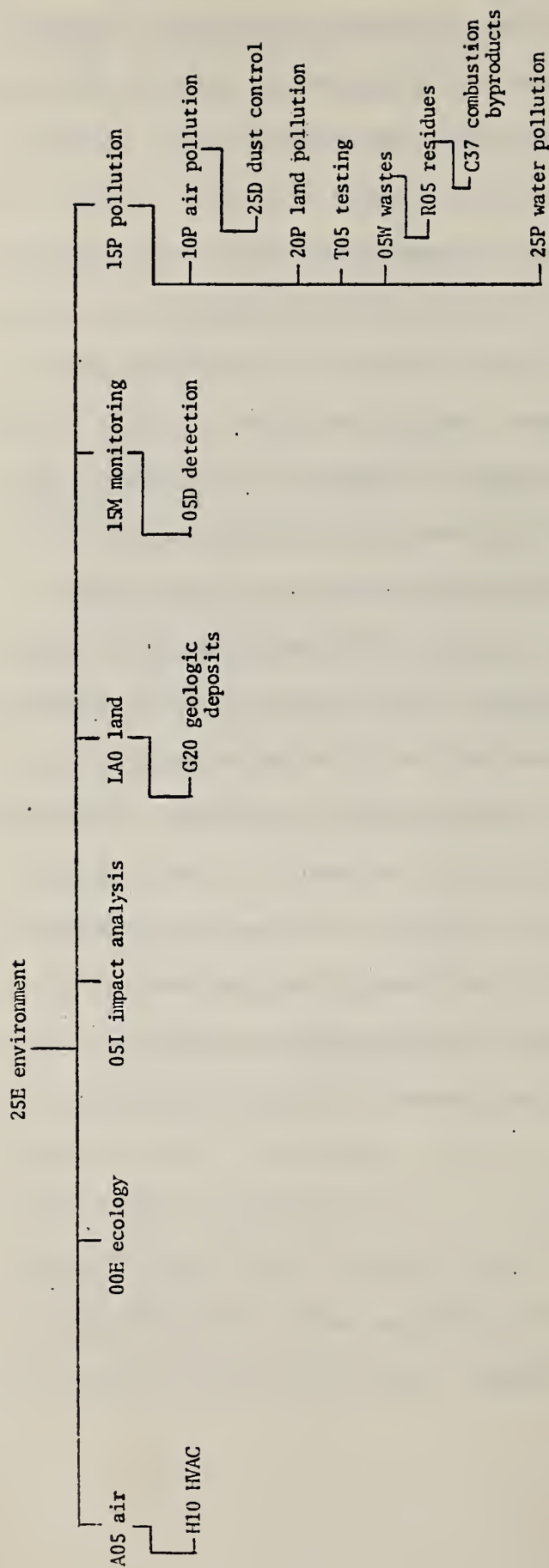
Many authority term listings include UF and RT notations, each heading lists of one or more terms. UF stands for "Use For" and identifies a list of secondary, or "thesaurus" terms. Thesaurus terms are provided as a convenience to the searcher in order to convert a potentially large vocabulary of familiar terms into a comparatively compact set of authority terms used in indexing. Both authority and thesaurus terms may be added to the thesaurus as the need arises, and it is possible for a thesaurus term to be promoted to an authority term at some stage. There is a symmetry in the thesaurus in the sense that there is a USE (authority code and term) for each UF listing, and each UF list contains all the thesaurus terms assigned to the corresponding authority term. For example, the first thesaurus term in Part B is "abandoned shafts - USE 20P land pollution." This means that a document involving abandoned shafts would have 20P among its indexing codes. Therefore, if a user specified 20P as the sole search term, reference to this document (and many others) would be returned. However, if the document was a law that



applied only to West Virginia and the user simultaneously specified the code for Pennsylvania as the specific source, the reference for the West Virginia law would not be returned since the source specification was not met. The user could further refine the search by invoking the index for coal, which is C20, to concentrate on shafts of abandoned coal mines.

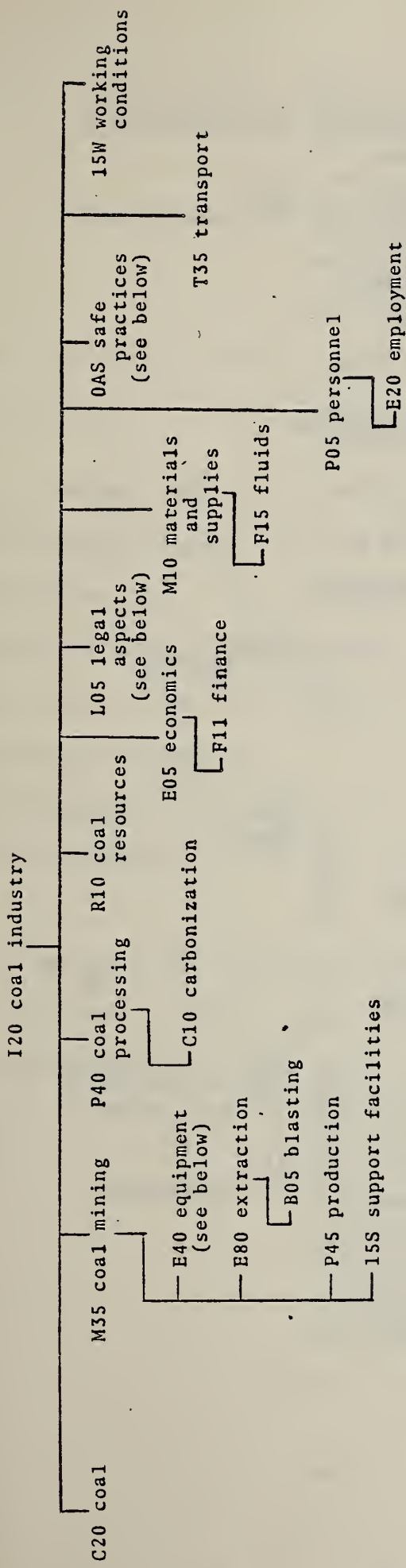
RT stands for Related Terms which are suggestions of other authority terms the searcher may wish to explore. Reciprocal RT references are provided. (If A is an RT for B, then B is an RT for A). In addition, the RT's are arranged in hierarchical patterns, one starting with "I20 coal industry" and the other with "25E environment." The main RT structures are given in Figure 1, omitting those authority terms at the finest level of detail in the structure. For example, "10M abandoned mines" is one of the narrower terms (NT's) under the broader term (BT) "20P land pollution," which is, in turn, a NT under "15P pollution," and "15P pollution" is an NT under "25E environment." Thus, "10M abandoned mines" could be discovered as a possible search term starting with any of the BT's: 25E, 15 or 20P. 10M would have been included in the tree if it had NT's of its own. BT's are noted in the thesaurus according to the structure in Figure 1. The trees provide one way, but far from the only way of relating the terms. The relationships in the trees have no significance beyond providing connected search paths. Several RT relationships between the two main trees in Figure 1 have been omitted for simplicity.

Figure 1. Authority Term Hierarchies\* (Sheet 1 of 2)

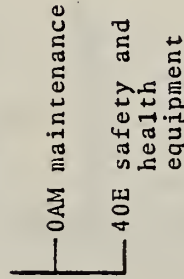


\* A structure consisting of two hierarchies of related terms (RT's) is provided to help a user find alternate authority terms for searching. One hierarchy (or tree) begins with "25E environment" and the other with "I20 coal industry". Each of the more than 200 authority terms belongs to one or the other of these trees. Figure 1 contains 58 terms, each of which has one or more RT's that expand on the particular term. A liberal number of RT's in the thesaurus were added to provide more direct connections within and between the trees.

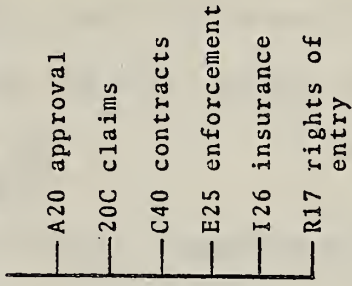
Figure 1. Authority Term Hierarchies (Sheet 2 of 2)



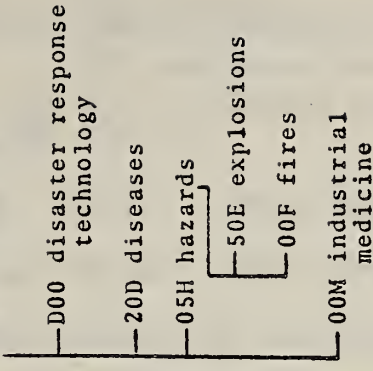
(E40 equipment)



(L05 legal aspects)



(OAS safe practices)



PART B

Thesaurus of Coal Technology and Environment, Safety and Health Terms

10M abandoned mines	<u>UF</u> mine abandonment	<u>RT's</u> BT 20P land pollution
abandoned shafts -	USE 20P land pollution	
abandoned sites -	USE 20P land pollution	
absenteeism -	USE E20 employment	
acceptable concentrations -	USE OAT threshold values	
accessories -	USE E40 equipment	
accident prevention plans -	USE 00P plans	
accident reports -	USE 05R reports and records	
00A accidents	<u>UF</u> mine collapse	<u>RT's</u> BT 05H hazards
acid mine drainage -	USE D05 drainage	
acid rain -	USE 10W water general	
A00 aeration		<u>RT's</u> BT A05 air
aerial prospecting -	USE E75 exploration	
aerial tramways -	USE HA0 haulage	
aerosol monitoring -	USE 10P air pollution	
A01 aerosols		<u>RT's</u> TOP air pollution BT 25D dust control
05A aesthetics		<u>RT's</u> BT 25E environment
agglomeration -	USE C00 caking	



A05 air

UF

air flow  
air pressure  
air supply  
atmosphere  
breathing air  
breathing gas  
earth atmosphere  
respirable air  
surface air

RT's

A00 aeration  
10P air pollution  
G10 compressed gases  
BT 25E environment  
H10 HVAC

air circulation - USE V05 ventilation

A10 air curtains

UF

canopies

RT's

BT H10 HVAC

air cleaning - USE 10P air pollution

air cleaning systems - USE 10P air pollution

air contaminants - USE 11E emissions

air conditioning - USE H10 HVAC

air filters - USE F10 filters

air flow - USE A05 air

air heaters - USE H10 HVAC

A15 air infiltration

UF

air leakage  
gas infiltration

RT's

BT H10 HVAC

air leakage - USE A15 air infiltration

air monitors - USE 40E safety and health equipment

10P air pollution

UF

aerosol monitoring  
air cleaning  
air cleaning systems  
air pollution  
abatement  
air pollution control  
air pollution  
monitors  
air quality  
air samplers

RT's

A01 aerosols  
A05 air  
00C carbon dioxide  
05C carbon monoxide  
25D dust control  
G05 gaseous wastes  
11E emissions  
BT 15P pollution  
V00 vapors  
S60 sulfur  
OAN nitrous oxide

10P air pollution (cont.)

UF

RT's

atmospheric chemistry C37 combustion  
clean air area byproducts  
fallout  
flue gas  
fly ash  
smog  
smoke  
soot  
stack disposal  
sulfur removal

air pollution abatement - USE 10A air pollution

air pollution control - USE 10P air pollution

air pollution monitors - USE 10P air pollution

air pressure - USE A05 air

air pump - USE H10 HVAC

air quality - USE 10P air pollution

air samplers - USE 10P air pollution

air supply - USE A05 air

alarm devices - USE 40E safety and health equipment

alarm systems - USE 40E safety and health equipment

alluvia - USE G20 geologic deposits

alluvial valley floors - USE G25 geologic structures

allocation - USE R15 resources

allowable concentrations - USE 0AT allowable concentrations

alternating current - USE E10 alternating current

ANFO - USE E77 explosives

antifreeze - USE W10 working fluids

antitoxins - USE 00T toxins

anthracite coal - USE C20 coal

appeals - USE L05 legal aspects

application procedures - USE F05 federal assistance programs

application for approval - USE A20 approval

A20 approval

<u>UF</u>	<u>RT's</u>
application for	T5C certification
approval	41E equipment
conditional approval	certification
disapproval	H00 hearing
extensions of	BT L05 legal aspects
approval	05L licenses
reapproval	P04 permits
variances	R25 rulings

approval list - USE 05R reports and records

arctic clothing allowance - USE 15H human factors design

20A asbestos

<u>RT's</u>
BT 25D dust control

25A ash

<u>UF</u>	<u>RT's</u>
bottom ash	10P air pollution
de-ash	BT C37 combustion by-
	products
	R05 residues

archeological sites - USE 005 protected sites

aquifers - USE 10W water

atmosphere - USE A05 air

atmospheric chemistry - USE 10P air pollution

atmospheric precipitations - USE W05 weather

auger mining - USE M40 surface mining coal

autopsies - USE 00D death

availability - USE S65 coal supply

backfilling - USE M40 surface coal mining and 00R reclamation

baghouse filters - USE F10 filters

backhoes - USE E50 surface mining equipment

belt conveyors - USE E55 underground mining equipment

bench testing - USE T05 testing

beneficiation - USE C30 coal preparation

benefit payments - USE 20I health insurance

benefits - USE 20I health insurance

bituminuous coal - USE C20 coal

bias - USE 500 sampling

black coal - USE C20 coal

black lung - USE 05P pneumoconiosis

black lung benefits - USE 05P pneumoconiosis

## B05 blasting

UF

RT's

BT blasting cables

E65 excavation

blasting caps

50E explosions

blasting devices

BT E80 extraction

boreholes

S52 stemming devices

cardox

E77 explosives

cartridges

N00 nitrogen

chemical explosions

compounds

detonation waves

detonating card

detonations

detonators

effectiveness tests

explosive fracturing

explosive wrappers

ignition

non-explosive wrappers

propagation

rate of detonation

shock waves

shot firer

tamping

underground explosions

wrappers

wrapper-to-explosive

ratio

blasting cables - USE B05 blasting  
 blasting caps - USE B05 blasting  
 blasting devices - USE B05 blasting  
 blueprints - USE P20 planning  
 boghead coal - USE C20 coal  
 boilers - USE B10 burners  
 boreholes - USE B05 blasting  
 boiler fuels - USE F25 solid and liquid fuels  
 boring machines - USE E55 underground mining equipment  
 brakes - USE E04 safety and health equipment  
 brand names - USE 00L labeling  
 breath - USE 15R respiration  
 breathing air - USE A05 air  
 breathing gas - USE A05 air  
 brown coal - USE C20 coal  
 bucket and wheel excavations - USE M40 surface coal mining  
 bulk shipping - USE T35 transport  
 Bureau of Mine districts - USE C35 coal producing districts  
 burns - USE 101 injury prevention and response  
 burner ignition - USE B10 burners

B10 burners

<u>UF</u>	<u>RT's</u>
boilers	BT E40 equipment
burner ignition	H05 heat
combustion	M15 materials
conversion	handling
(oil to gas to coal)	P30 power plants
de-ashing	
draft control systems	
ebullated bed	
flames	
flashback	



B10 burners cont.

UF

RT's

fluidized bed  
fluidization  
fuel-air ratio  
fuel systems  
furnaces  
magnetohydrodynamic  
(MHD) generators  
MHD generators  
oil burners  
packed bed  
stoichiometry  
stokers

cables - USE 10E electrical systems

C00 caking

UF

RT's

agglomeration  
compacting

BT P40 coal processing

calibration - USE E40 equipment

calorific values - USE H05 heat

cancer - USE 200 diseases

cannel coal - USE C20 coal

canopies - USE A10 air

capacitors - USE E35 electrical equipment

capacity - USE S36 specifications

C05 carbon compounds, mining  
applications

UF

RT's

carborundum

BT M10 materials and  
supplies

00C carbon dioxide

RT's

BT 10P air pollution

C10 carbonization

RT's

BT P40 coal processing  
C36 coke

05C carbon monoxide

RT's

BT 10P air pollution

carborundum - USE C05 carbon compounds mining applications

cardox - USE B05 blasting

cardio-pulmonary respiratory training - USE 05T training  
cartridges - USE B05 blasting  
catalytic convertors - USE 35E pollution control equipment  
cave-ins (controlled) - USE M45 underground coal mining

15C certification

UF  
uncertified person BT RT's  
A20 approval  
41E equipment  
certification  
P04 permits  
P05 personnel

certified personnel - USE P05 personnel  
chemical explosions - USE B05 blasting  
chemical explosives - USE E77 explosives

C15 chemical reactions

RT's  
BT P40 coal processing  
P50 pyrolysis

charges - USE E77 explosives  
child labor - USE E20 employment  
checking - USE 15M monitoring  
chemical treatment - USE M17 materials processing  
cinders - USE C37 combustion byproducts  
circulation (air) - USE V05 ventilation  
circuit breakers - USE E35 electrical equipment  
circuit protection - USE E35 electrical equipment

20C claims

RT's  
T5D disability  
E11 eligibility  
E25 enforcement  
I26 insurance  
L20 liability  
BT L05 legal aspects  
P05 personnel  
20W workers  
compensation

classification - USE 00L labeling

clean air area - USE 10P air pollution

clearance - USE 15H human factors design

clinkers - USE C37 combustion products

closure - USE OCS security

C20 coal

UF

anthracite coal

bituminous coal

black coal

boghead coal

brown coal

cannel coal

coal deposits

coal fines

coal seams

lignite

run-of-mine coal

sapropelic coal

sub-bituminous coal

torbanite

RT's

G00 coal derived gas

L40 coal derived

liquids

B00 coal derived

bituminous

materials

BT I20 coal industry

H15 hydrocarbons

F20 gas fuels

S25 slurries

F25 solid and liquid  
fuels

C25 solvent-refined  
coal

F30 synthetic fuels

coal cleaning - USE C30 coal preparation

coal deposits - USE C20 coal

B00 coal-derived bituminous  
materials

UF

coal tar

creosote

feedstocks

naphtha

pitch

tar

RT's

BT C20 coal

G00 coal-derived gas

RT's

BT C20 coal

L40 coal-derived liquids

RT's

BT C20 coal

F25 solid and liquid  
fuels

D09 coal dust

RT's

BT 25D dust control

P00 particles



coal fines - USE C20 coal

coal-fired MHD generators - USE B10 burners

coal gas - USE M25 methane

G15 coal gasification

UF  
conversion  
cracking  
enrichment

RT's  
BT P40 coal processing  
I10 in-situ  
processing

I20 coal industry  
(no BT's)

RT's  
C20 coal  
M05 coal markets  
M35 coal mining  
P40 coal processing  
R10 coal resources  
M10 materials and  
supplies  
P05 personnel  
OAS safe practices  
T35 transport  
E05 economics  
L05 legal aspects  
I5W working  
conditions

L30 coal liquefaction

UF  
coal liquefaction  
plants  
conversion  
cracking  
enrichment  
liquefaction

RT's  
BT P40 coal processing

coal liquefaction plants - USE L30 coal liquefaction

coal-hauling vehicles - USE HAO haulage

M05 coal markets

UF  
domestic markets  
foreign markets

RT's  
BT I20 coal industry  
R10 coal resources  
U00 electric  
utilities  
E76 exports  
I05 imports  
I15 industrial plants  
P30 power plants

M35 coal mining

RT's  
BT I20 coal industry  
E40 equipment  
E80 extraction  
M10 materials and  
supplies  
P45 production  
I5S support  
facilities  
M40 surface coal  
mining  
M45 underground coal  
mining

P10 coal pipelines

UF  
slurry pipelines

RT's  
BT T35 transport

C30 coal preparation

UF  
beneficiation  
coal cleaning  
coal preparation  
plants  
crushing  
drying  
elutriation  
flotation  
pulverizing  
screening  
sizing  
tramp metal removal  
washing

RT's  
BT P40 coal processing  
E60 preparation  
equipment

coal preparation plants - USE C30 coal preparation

coal plows - USE E55 underground mining equipment

P40 coal processing

UF  
desulfurization  
devolatilization  
forming  
trace element  
contamination

RT's  
C00 caking  
C10 carbonization  
C15 chemical  
reactions  
G15 coal gasification  
BT I20 coal industry  
L30 coal liquefaction  
C30 coal preparation  
I10 in-situ  
processing  
P50 pyrolysis  
S50 sintering  
S35 solvent  
extraction

C35 coal producing district      UF      RT's  
   Bureau of Mines      BT C10 coal resources  
   districts

coal refuse - USE R05 residues

R00 coal reserves      RT's  
   BT C10 coal resources

R10 coal resources      RT's  
   BT I20 coal industry  
   M05 coal market  
   C35 coal producing  
   districts  
   R00 coal reserves  
   S65 coal supply  
   30C conservation  
   E70 exploitation  
   E75 exploration  
   R15 resources

coal seams - USE C20 coal

S55 coal storage      UF      RT's  
   stockpiles      M21 materials  
   stockpiling      storage  
   underground      BT T35 transport  
   storage

S65 coal supply      UF      RT's  
   availability      BT R10 coal resources

coal tar - USE B00 coal-derived bituminuous materials

coal users - USE I15 industrial plants

coating - USE M17 material processing

C36 coke      UF      RT's  
   coke ovens      BT C10 carbonization  
   coking      C20 coal  
   coking plants  
   formed coke

coke ovens - USE C10 carbonization

coking - USE C10 carbonization

coking plants - USE C10 carbonization

combustion - USE B10 burners

C37 combustion byproducts	<u>UF</u>	<u>RT's</u>
	cinders	20P air pollution
	clinkers	25A ash
	dust	P30 power plants
	furnace residue	BT R05 residues
	slag	S20 sludges

combustion control - USE B10 burners

T00 combustion temperature control	<u>UF</u>	<u>RT's</u>
	temperature	BT P30 power plants
	gradients	
	temperature measurement	

combustion waves - USE B10 burners

combustors - USE B10 burners

combustibility - USE 15F flammability

comfort - USE 15H human factors design

E30 communications equipment	<u>UF</u>	<u>RT's</u>
	in-mine	BT E40 equipment
	communication	15S support
	pager	facilities
	radio	
	signaling devices	
	telephone devices	

25C communities	<u>UF</u>	<u>RT's</u>
	housing	BT 00E ecology
	schools	35P populations
	social services	

compacting - USE C00 caking

complaints - USE V06 violations

C38 compliance	<u>UF</u>	<u>RT's</u>
	compliance	BT E25 enforcement
	schedules	
	exceptions	
	exemptions	
	extensions	

compliance schedules - USE C38 compliance

compressed air - USE G10 compressed gases

compressed air gauges - USE G10 compressed gases

compressed air valves - USE G10 compressed gases

G10 compressed gases

<u>UF</u>		<u>RT's</u>
compressed air	BT	A05 air
compressed air gauges		
compressed air valves		

concentrating tables - USE E60 preparation equipment

conditional approval - USE A20 approval

conditioning - USE M17 materials processing

28C conditions

<u>UF</u>		<u>RT's</u>
conditions at	BT	C40 contracts
delivery		15W working
conditions of		conditions
manufacture		
conditions of operations		
conditions of purchase		
conditions of sale		
conditions of storage		
conditions of testing		
conditions of use		

conditions at delivery - USE 28C conditions

conditions of manufacture - USE 28C conditions

conditions of operation - USE 28C conditions

conditions of sale - USE 28C conditions

conditions of storage - USE 28C conditions

conditions of testing - USE 28C conditions

conditions of use - USE 28C conditions

conflict of interest - USE L05 legal aspects

confined spaces - USE 15W working conditions

30C conservation

<u>UF</u>		<u>RT's</u>
energy	BT	R10 coal resources
conservation		R15 resources
resource conservation		



C39 construction

UF  
floor opening  
platforms  
runways  
scaffolding  
stairways  
surface buildings  
timbers

RT's  
M35 coal mining  
P20 planning  
BT P45 production

construction materials - USE M10 materials and supplies

consumables - USE M10 materials and supplies

contamination - USE 15P pollution

contouring - USE 00R reclamation

continuous miner - USE E55 underground mining equipment

C40 contracts

RT's  
28C conditions  
41E equipment  
certification  
L15 leasing  
BT L05 legal aspects  
S36 specifications

controlled atmosphere - USE A05 air

conversion (oil or gas to coal) - USE B10 burners

conveyors - USE M15 materials handling

cooling - USE H10 HVAC

cooling load - USE H10 HVAC

corrosion - USE E61 equipment degradation

core drilling - USE E75 exploration

C45 cost-benefit analysis

RT's  
BT E05 economics

costs - USE F11 finance

CPR training - USE 05T training

creosote - USE B00 coal-derived bituminous materials

critical habitat - USE 00H habitat

crushing - USE C30 coal preparation  
 crushers - USE E60 preparation equipment  
 cultivation - USE 20P revegetation  
 current - USE E10 electricity  
 cutoff valves - USE 42E safety feature on equipment  
 cyclones - USE E40 equipment  
 cyclonic mechanical dust collectors - USE E40 equipment  
 danger zone - USE 05H hazards  
 dangerous condition - USE 05H hazards  
 dating - USE 00L labeling  
 de-ash - USE 25A ash  
 de-ashing - USE B10 burners

00D death

UF  
autopsies

RT's  
BT D00 disaster response  
technology

defects - USE OAF equipment failures  
 description - USE S36 specification  
 design - USE S36 specification  
 desulfurization - USE P40 processing  
 descaling - USE 35E pollution control equipment

05D detection

RT's  
OAS safe practices  
 15I inspections  
 25I investigations  
 BT 15M monitoring  
 T05 testing

deterioration - USE E61 equipment degradation  
 detonating cord - USE B05 blasting  
 detonations - USE B05 blasting

detonation waves - USE B05 blasting

detonators - USE B05 blasting

10D diagnosis

RT's  
BT 20D diseases  
OOM industrial  
medicine

diesel engines - USE 05H hazards

15D disability

RT's  
BT 20C claims  
15D diseases  
10I injuries

disallowal - USE 41E equipment certification

disapproval - USE A20 approval

D00 disaster response  
technology

RT's  
00D death  
21D disinfection  
12E emergencies  
OOM industrial  
medicine  
10R rescue operations  
BT OAS safe practices  
05T training  
15W working  
conditions

disaster response plans - USE 00P plans

20D diseases

UF  
cancer  
emphysema  
etiology  
illness  
occupational  
disease  
pathogenesis  
pathogens  
respiratory system BT  
symptoms

RT's  
30C claims  
10D diagnosis  
15D disability  
55E exposure limits  
OOM industrial  
medicine  
10I injuries  
05P pneumoconiosis  
OAS safe practices  
OAT threshold values

21D disinfection

RT's  
BT D00 disaster response  
technology



disturbed lands - USE LA0 land  
 direct current - USE E10 electricity  
 domestic markets - USE M05 coal markets  
 draft control systems - USE B10 burners  
 draglines - USE E50 surface mining equipment

D05 drainage	<u>UF</u>		<u>RT's</u>
	acid mine drainage	BT	25P water pollution
	mine drainage		

drainage basin - USE 10W water  
 drawdown - USE 10W water  
 drawings - USE S30 specification  
 dressing - USE M17 materials processing  
 drilling - USE E80 extraction  
 drinking water - USE 10W water  
 dryers - USE E60 preparation equipment  
 drying - USE C30 coal preparation  
 dust - USE C37 combustion byproducts  
 dust collectors - USE E40 equipment  
 dust control - USE D09 coal dust

25D dust control	<u>UF</u>		<u>RT's</u>
	dust control foam		A0T aerosols
	dusty mine	BT	10P air pollution
	atmospheres		20A asbestos
			D09 coal dust
			P00 particles
			05P pneumoconiosis
			D10 surface dust

dust control foam - USE D09 coal dust  
 dust, mist and fume respirators - USE 40E safety and health equipment  
 dust samplers - USE 40E safety and health equipment  
 dynamite - USE E77 explosives

earth atmosphere - USE A05 air

E00 earthquakes

UF  
seismic events  
tremors

RT's  
BT LA0 land

ease of use - USE 15H human factors design

ebullated bed - USE B10 burners

ecological disruption - USE 00E ecology

00E ecology

UF  
ecological  
disruption  
ecosystems  
food chain  
ground cover

RT's  
25C communities  
05S endangered and  
threatened species  
BT 25E environment  
10F fish and wildlife  
00H habitat  
35P populations

economic impact - USE 00I impact

E05 economics

UF  
payback period  
risk assessment  
small business

RT's  
C45 cost-benefit  
analysis  
F11 finance  
S70 supply and demand  
BT I20 coal industry  
E70 exploitation

ecosystems - USE 00E ecology

education - USE 05T training

effectiveness tests - USE A05 blasting

05E effluents

RT's  
BT 25P water pollution

elapsed time indicators - USE 40E safety and health equipment

electric discharges - USE E10 electricity

electric faults - USE E10 electricity

electric power - USE E10 electricity

U00 electric utilities

UF  
private utilities  
public utilities

RT's  
M05 coal markets  
E10 electricity  
BT P30 power plants

electric shock - USE 101 injury prevention and response

E35 electrical equipment

UF

batteries  
battery boxes  
cable reels  
capacitors  
circuit breakers  
circuit protection  
fuses  
trailing cables  
trolley feeder wires

RT's

BT E40 equipment  
E10 electricity

10E electrical systems

UF

cables  
dead-man control  
switches  
deenergizing  
diodes  
electrical tests  
filaments  
fuses  
fuse boxes  
grounding  
insulation  
power circuit  
resistors  
signal circuit  
switches  
wiring

RT's

E10 electricity  
BT E40 equipment

electrical tests - USE 10E electrical systems

E10 electricity

UF

alternating current  
current  
direct current  
electric discharges  
electric faults  
electric power  
external arcs  
polarity  
voltage

RT's

E35 electrical  
equipment  
10E electrical  
systems  
U00 electrical  
utilities  
E40 equipment  
L25 lighting systems  
P30 power plants  
P35 power  
transmission  
BT 15S support  
facilities

electrostatic precipitators - USE 35E pollution control equipment

electrostatic precipitations - USE 35E pollution control equipment

E11 eligibility

RT's  
BT 20C claims

elutriation - USE C30 coal preparation

E15 embankments

RT's  
BT 05H hazards

12E emergencies

UF  
emergency shelter BT RT's  
D00 disaster response  
technology

emergency - USE 10H health services

emergency medical services - USE 10H health services

emergency procedure instructions - USE 00L labeling

emergency shelter - USE 12E emergencies

eminent domain - USE S75 surface rights

11E emissions

UF  
air contaminants BT RT's  
10P air pollution  
05H hazards

emphysema - USE 20D diseases

15E employee responsibilities

RT's  
BT E20 employment

20E employer responsibilities

RT's  
BT E20 employment

employee transfer - USE 01R personnel rehabilitation

E20 employment

UF  
absenteeism RT's  
15E employee  
child labor responsibilities  
grievance procedures 20E employer  
labor practices responsibilities  
labor representation OAP human physical  
length of services requirements  
retirement L05 legal aspects  
termination BT P05 personnel  
01R personnel  
rehabilitation  
20W workers  
compensation

enclosed areas - USE 15W working conditions

enclosures - USE 42E safety features on equipment

05S endangered and threatened  
species

RT's  
BT 00E ecology  
10F fish and wildlife

energy absorption factor - USE S36 specifications

energy conservation - USE 30C conservation

energy resources - USE R15 resources

energy supply - USE 30C conservation

enforcement - USE C38 compliance

E25 enforcement

RT's  
20C claims  
C38 compliance  
15I inspections  
25I investigations  
BT L05 legal aspects  
PA0 payments and fees  
P01 penalties  
05R reports and  
records  
V06 violations

25E environment  
(no BT's)

<u>UF</u>	<u>RT's</u>
environmental effects	05A aesthetics
environmental	A05 air
engineering	00E ecology
environmental	30E environmental
exposure pathway	impact statements
environmental	05I impact analysis
materials	LA0 land
environmental	15M monitoring
policy	15P pollution
environmental	0BS seasonal
transport	restrictions
	10W water
	W05 weather

environmental effects - USE 25E environment

environmental engineering - USE 25E environment

environmental exposure pathway - USE 25E environment



environmental impact - USE 001 impact

30E environmental impact  
statement

RT's  
25E environment  
BT 05I impact analysis

environmental materials - USE 25E environment

environmental policy - USE 25E environment

environmental transport - USE 25E environment

E40 Equipment

<u>UF</u>		<u>RT's</u>
accessories		B10 burners
calibration	BT	M35 coal mining
cyclones		E30 communications
cyclonic mechanical		equipment
dust collectors		E10 electricity
dust collectors		E35 electrical
indicators		equipment
instrumentation		10E electrical
jet drills		systems
pressure regulators		H10 HVAC
		I24 installation
		of equipment
		E45 laboratory
		equipment
		OAM maintenance
		35E pollution control
		equipment
		E60 preparation
		equipment
		E50 surface mining
		equipment
		E55 underground
		mining equipment
		40E safety and health
		equipment

41E equipment certification

<u>UF</u>		<u>RT's</u>
disallowal	BT	A20 approval
equipment inspection		05L licenses
modifications		P04 permits

E61 equipment degradation

<u>UF</u>		<u>RT's</u>
corrosion		OAF equipment failure
deterioration	BT	OAM maintenance
leakage		T15 thermal
		degradation



OAF equipment failure

UF  
defects  
misfires  
test failure

RT's  
E6T equipment  
degradation  
05H hazards  
BT OAM maintenance

equipment inspection - USE 41E equipment certification

equipment location - USE 124 installation of equipment

equipment recall - USE OAR recall

45E erosion

RT's  
BT 20P land pollution

escapeways - USE M45 underground coal mining

etiology - USE 20D diseases

evacuation plans - USE 00P plans

E65 excavation

RT's  
B05 blasting  
BT E80 extraction

exceptions - USE C38 compliance

exemptions - USE C38 compliance

exhalation - USE 15R respiration

exhaust gases of diesel vehicles - USE 05H hazards

expenses - USE F11 finance

experience - USE P05 personnel

E70 exploitation

RT's  
BT C10 coal resources  
E05 economics  
E75 exploration  
P45 production

E75 exploration

UF  
aerial prospecting  
core drilling  
geological surveys  
prospecting  
radiometric surveys  
remote sensing  
surveys

RT's  
BT C10 coal resources  
C70 exploitation  
P45 production

explosion proof - USE 50E explosions

50E explosions	<u>UF</u> explosive hazards explosion proof explosion-proof enclosure non-explosion proof	<u>RT's</u> B05 blasting BT 05H hazards M25 methane OBP permissibility
E77 explosives	<u>UF</u> ANFO (ammonium nitral fuel oil mixture) charges chemical explosives dynamite explosives storage gelatinous explosives nitroglycerine non-gelatinous explosives plastique propellant TNT	<u>RT's</u> BT B05 blasting M10 materials and supplies N00 nitrogen compounds S52 stemming devices M21 materials storage
explosive proof - USE 50E explosions		
explosive fracturing - USE A05 blasting		
explosive hazards - USE 50E explosions		
explosive wrapper - USE A05 blasting		
E76 exports		<u>RT's</u> BT M05 coal markets
55E exposure limits		<u>RT's</u> BT 20D diseases OAT threshold values
expression of results - USE 05R reports and records		
extensions - USE C38 compliance		
extensions of approval - USE A20 approval		
E80 extraction	<u>UF</u> drilling mines mining engineering	<u>RT's</u> 25D dust control B05 blasting E65 excavation HA0 haulage (in-mine) M15 materials handling 00W waste management BT M35 coal mining

extraction apparatuses - USE E45 laboratory equipment

extraction columns - USE E45 laboratory equipment

fabric filters - USE F10 filters

face masks - USE 40P protective clothing

fallout - USE 10P air pollution

fallout deposits - USE 10P air pollution

fauna - USE 35P populations

F05 federal assistance  
programs

UF  
application  
procedures  
funding  
grants  
research grants

RT's  
BT F11 finance

F00 federal test procedures

RT's  
BT T05 testing

feedstocks - USE B00 coal-derived bituminous materials

feedwater - USE W00 water

fees - USE F11 finance

fee schedules - USE F11 finance

fencing - USE 20P land pollution

fertilization - USE 20R revegetation

field testing - USE T05 testing

F10 filters

UF  
air filters  
baghouse filters  
fabric filters

RT's  
BT T5P pollution  
40P protective  
clothing

F11 finance

UF  
costs  
expenses

RT's  
BT E05 economics  
F05 federal  
assistance programs  
L45 loans  
PA0 payments and fees

fire control foam - USE 00F fires

fire control projects - USE 00F fires

firedamp - USE M25 methane

fire detection - USE 00F fires

fire extinguishers - USE 00F fires

fire fighting - USE 00F fires

fire fighting equipment - USE 00F fires

fire hazards - USE 00F fires

fire prevention - USE 00F fires

fire resistance - USE 00F fires

fire safety - USE 00F fires

00F fires

UF

RT's

fire control foam

15F flammability

fire control

BT 05H hazards

projects

V10 volatility

fire detection

fire extinguisher

fire fighting

fire fighting equipment

fire hazards

fire prevention

fire resistance

fire safety

spontaneous combustion

05F first aid

UF

RT's

first-aid kit

BT 00M industrial

triage

medicine

10I injuries

first aid training - USE 05T training

10F fish and wildlife

UF

RT's

wildlife

BT 00E ecology

05S endangered and

threatened species

35P populations

flame arresting path - USE 15F flammability

flame detectors - USE 40E safety and health equipment

flame resistance - USE 15F flammability

flame safety lamps - USE 40E safety and health equipment

flames - USE B10 burners

15F flammability

<u>UF</u>	<u>RT's</u>
after burning	BT 00F fires
combustibility	V10 volatility
flame-arresting path	
flame resistance	
inflammability	
non-combustibility	
non-flammability	

flashback - USE B10 burners

flotation - USE C30 coal preparation

floods - USE 10W water

floor openings - USE C39 construction

flora - USE 35P populations

flue gas - USE 10P air pollution

fluidized bed - USE B10 burners

fluidized bed combustion - USE B10 burners

fluidized bed reactors - USE B10 burners

fluidization - USE B10 burners

F15 fluids

<u>RT's</u>
L35 liquids
BT M10 materials and supplies
W10 working fluids

fly ash - USE 25A ash

food chain - USE 00E ecology

formed coke - USE C10 carbonization

forming - USE P40 processing

fossil fuel power plants - USE P30 power plants



fossil fuels - USE F25 solid and liquid fuels

fuel feeding systems - USE B10 burners

fuel gas - USE F25 solid and liquid fuels

fuel-air ratio - USE B10 burners

fuel systems - USE B10 burners

fuel slurries - USE F25 solid and liquid fuels

fume hoods - USE E45 laboratory equipment

fumes - USE V00 vapors

funding - USE F05 federal assistance programs

funds - USE F11 finance

furnace residue - USE C37 combustion byproducts

furnaces - USE B10 burners

fuses - USE E35 electrical equipment

galvanizing - USE M17 materials processing

gaseous waste - USE 05W wastes

G05 gaseous wastes

RT's  
BT TOP air pollution

F20 gas fuels

UF  
gas generators  
gas yields  
methane  
natural gas

RT's  
BT C20 coal  
H15 hydrocarbons  
F25 solid and liquid  
fuels

gas generators - USE F20 gas fuels

gas infiltration - USE A15 air infiltration

gas masks - USE 40E safety and health equipment

gas yields - USE F20 gas fuels

gassy mines - USE M25 methane

gating - USE OCS security



gelatinous explosives - USE E77 explosives

G20 geologic deposits	<u>UF</u> alluvia sediments	<u>RT's</u> G20 geological structures BT LA0 land S30 soils
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G25 geological structures	<u>UF</u> alluvial valley floors strata	<u>RT's</u> G20 geological deposits BT LA0 land R20 rocks
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geological surveys - USE E75 exploration

government employees - USE P05 personnel

grading - USE 00R reclamation

grants - USE F05 federal assistance programs

grazing - USE 20R revegetation

ground cover - USE 00E ecology

ground disposal - USE 20P land pollution

ground water - USE 10W water

grounding - USE 10E electrical systems

guards - USE 42E safety features on equipment

00H habitat	<u>UF</u> critical habitat protected habitat	<u>RT's</u> BT 00E ecology
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hail - USE W05 weather

handling - USE HA0 haulage, in mine

haulage - USE M40 surface coal mining

HA0 haulage	<u>UF</u> aerial tramways coal-hauling vehicle handling	<u>RT's</u> M15 materials handling BT T35 transport
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05H hazards

<u>UF</u>	<u>RT's</u>
danger zone	OBP permissibility
dangerous condition	E15 embankments
diesel engines	11E emissions
exhaust gases of diesel engines	0AF equipment failure
hazardous atmosphere	50E explosions
incendiary materials	00F fires
poisonous gases	30I irritants
rubbish	00N noise levels
sparks	BT 0AS safe practices
zone of danger	00T toxins
	15P pollution
	00A accidents
	15W working conditions

hazardous atmosphere - USE 05H hazards

head clearance - USE 15H human factors design

health impact - USE 00I impact

20I health insurance

<u>UF</u>	<u>RT's</u>
benefits	BT I26 insurance
benefit payments	I25 liability
survivors	insurance

health plans - USE 00P plans

10H health services

<u>UF</u>	<u>RT's</u>
emergency medical services	BT 00M industrial medicine
physical examination	
preventive medicine	

H00 hearings

<u>UF</u>	<u>RT's</u>
notice	BT A20 approval
	L05 legal aspects

H05 heat

<u>UF</u>	<u>RT's</u>
calorific values	T10 thermal
heat exchangers	conductivity
heat transfer	T15 thermal
heat transfer fluids	degradation
heating	T20 thermal fatigue
heat load	T25 thermodynamic
kilns	properties
operating temperature	OAM maintenance
radiators	BT P30 power plants
surface temperature	S50 steam
waste heat	25P water pollution
	B10 burners

heat exchangers - USE H05 heat

heat load - USE H05 heat

heat transfer - USE H05 heat

heat transfer - USE H05 heat

heat treatment - USE M17 materials handling

heating - USE H05 heat

heating, ventilating, and air conditioning. See HVAC.

height - USE OAP human physical requirements

helmets - USE 40P protective clothing

high wall reduction - USE OOR reclamation

hoisting - USE M15 materials handling

hopper cars - USE T40 rail transport

hoppers - USE M15 materials handling

hot work - USE 15W working conditions

housing - USE 25C communities

human - USE 35P populations

15H human factors design

UF  
arctic clothing  
allowance  
comfort  
clearance  
ease of use  
head clearance  
legibility  
operating space  
envelope  
placement  
seat index point  
visiblity  
weight of apparatus

RT's  
OAP human physical  
requirements  
BT 15W working  
conditions

OAF human physical  
requirements

UF  
height  
visual acuity

RT's  
BT E20 employment  
15H human factors  
design

H10 HVAC (heating,  
ventilation and air  
conditioning

UF  
air conditioning  
air heaters

RT's  
A10 air curtains  
A15 air infiltration  
BT E40 equipment  
000 oxygen  
15R respiration  
V05 ventilation  
A05 air

hydraulic fluids - USE W10 working fluids

hydraulic mining - USE M45 underground coal mining

H15 hydrocarbons

RT's  
BT C20 coal

hydrology - USE 10W water

F25 solid and liquid  
fuels

identification - USE 00L labeling

ignition - USE B05 blasting

illness - USE 20D diseases

illumination - USE L25 lighting systems

00I impact

UF  
economic impact  
environmental impact  
health impact  
medical impact  
social impact

RT's  
BT 05I impact analysis

05I impact analysis

RT's  
BT 25E environment  
30E environmental  
impact statement  
00I impact  
15P pollution

impact ripping machines - USE E55 underground mining equipment

I00 impact shock

UF  
impact strength  
impact tests

RT's  
BT T05 testing

impact strength - USE I00 impact shock

impact tests - USE I00 impact shock

I05 imports

RT's  
BT M05 coal markets

impregnation - USE M17 materials processing

impounding reservoirs - USE 25P water pollution

incendiary materials - USE 05H hazards

inclined screen jigs - USE E60 preparation of equipment

indicators - USE E40 equipment

industrial accidents - USE 00A accidents

OOM industrial medicine

UF  
medical centers

RT's  
10D diagnosis  
D00 disaster response  
technology  
05F first aid  
10H health services  
45P public health  
BT OAS safe practices  
20D diseases  
10I injuries

I15 industrial plants

UF  
coal users

RT's  
BT M05 coal markets

industrial wastes - USE 05W wastes

inflammability - USE 15F flammability

inhalation - USE 15R respiration

injunction - USE L05 legal aspects

10I injuries

UF  
burns  
electric shock  
wounds

RT's  
15D disability  
20D diseases  
05F first aid  
BT OOM industrial  
medicine

in-mine communications - USE E30 communications equipment

in-mine gas - USE M25 methane

in-situ combustion - USE I10 in-situ processing

in-situ gasification - USE I10 in-situ processing



I10 in-situ processing

UF

in-situ combustion BT  
in-situ gasification

RT's

P40 coal processing  
G15 coal gasification  
L30 coal liquefaction

I5I inspections

RT's

BT 05D detection  
E25 enforcement  
18I inspectors  
25I investigations

inspector experience - USE 18I inspectors

inspector qualifications - USE 18I inspectors

I8I inspectors

UF

inspector experience  
inspector  
qualification

RT's

15I inspections  
BT P05 personnel

I24 installation of equipment

UF

equipment location  
equipment run-in  
mounting  
safe locations

RT's

BT E40 equipment

instructions - USE 00L labeling

instrumentation - USE E40 equipment

instrument-controlled machines - USE E55 underground mining equipment

insulation - USE 10E electrical systems

I26 insurance

RT's

20C claims  
20I health insurance  
BT L05 legal aspects  
L20 liability  
L25 liability  
insurance  
20W workers'  
compensation

interchangeability - USE F25 solid and liquid fuels

interlocks - USE 40E safety and health equipment

intrinsic safety - USE 42E safety features on equipment

inventories - USE M10 materials support



25I investigations

RT's  
05D detection  
BT E25 enforcement  
15I inspections

irrigation - USE 10W water

30I irritants

RT's  
BT 05H hazards  
00T toxins

jet drills - USE E40 equipment

kilns - USE H05 heat

00L labeling

<u>UF</u>	<u>RT's</u>
brand names	BT safety and health
certification number	equipment
classification	42E safety features
dating	on equipment
emergency procedure	15W working
instructions	conditions
lot numbers	
markings	
MHSA approval label	
operating instructions	
operating rules	
symbols	
warning labels	

labor practices - USE E20 employment

labor representation - USE E20 employment

E45 laboratory equipment

<u>UF</u>	<u>RT's</u>
extraction columns	E40 equipment
extraction	T05 testing
apparatuses	BT 15S support
fume loads	facilities
mist extractors	
samplers	

lamps - USE E55 underground mining equipment

LAO land

UF

disturbed lands  
land acquisition  
orphaned lands

RT's

E00 earthquakes  
BT 25E environment  
G20 geological  
deposits  
G25 geological  
structures  
20P land pollution  
L00 land use  
L05 legal aspects  
S15 mine siting  
S10 power plant  
siting  
R20 rocks  
S30 soils

land acquisition - USE LAO land

land entries - USE S75 surface rights

20P land pollution

UF

abandoned shafts  
abandoned sites  
fencing  
ground disposal  
land pollution  
abatement  
landscaping  
landslides  
mineral wastes  
slope stability  
spoil banks  
tipple  
weathering

RT's

TOM abandoned mines  
45E erosion  
LAO land  
BT 15P pollution  
OOS protected sites  
OOR reclamation  
20R revegetation

land pollution abatement - USE 20P land pollution

L00 land use

RT's

BT LAO land

landscaping - USE 20P land pollution

landslides - USE 20P land pollution

lawsuits - USE L05 legal aspects

L10 leaching

RT's

BT 25P water pollution

leakage - USE E61 equipment degradation

leaks - USE RAO repairs

leases - USE L15 leasing

L15 leasing

UF  
leases

RT's  
BT C40 contracts

L05 legal aspects

UF  
appeals  
conflict of interest  
injunctions  
lawsuits  
witnesses

RT's  
A20 approval  
20C claims  
BT I20 coal industry  
C40 contracts  
E20 employment  
E25 enforcement  
H00 hearings  
I26 insurance  
LA0 land  
R17 rights of entry

legibility - USE 15H human factors design

length of service - USE E20 employment

letters - USE 05R reports and records

L20 liability

RT's  
BT I26 insurance

I25 liability insurance

RT's  
BT I26 insurance  
20I health insurance

05L licenses

RT's  
BT A20 approval  
41E equipment  
certification  
P04 permits

life support systems - USE 40E safety and health equipment

L25 lighting systems

UF  
candlepower  
illumination

RT's  
BT E10 electricity  
15W working  
conditions

lightning - USE W05 weather

lightning rods - USE 40E safety and health equipment

lignite - USE C20 coal

limiters - USE 42E safety features on equipment

limits - USE S36 specifications

limits of error - USE S36 specifications

liquefaction - USE L30 coal liquefaction

liquid fuels - USE F25 solid and liquid fuels

liquid wastes - USE 05W wastes

#### L35 liquids

RT's  
BT F15 fluids

livestock - USE 35P populations

load - USE S36 specifications

#### L45 loans

RT's  
BT F11 finance

locked storage - USE OCS security

locking - USE OCS security

locking devices - USE 42E safety features on equipment

locks - USE OCS security

locomotives - USE T40 rail transport

longwall - USE M45 underground coal mining

longwall conveyors - USE E55 underground mining equipment

lot numbers - USE 00L labeling

lubrication - USE OAM maintenance

magazines - USE M21 materials storage

magnets hydrodynamic (MHD) generators - USE B10 burners

magnets - USE E60 preparation equipment

OAM maintenance	<u>UF</u>	<u>RT's</u>
	Lubrication	BT E40 equipment
		E61 equipment
		degradation
		OAF equipment failure
		M00 maintenance
		procedures
		OAR recall
		RA0 repairs
		H05 heat

maintenance interval - USE M00 maintenance procedures

M00 maintenance procedures	<u>UF</u>	<u>RT's</u>
	maintenance	BT OAM maintenance
	interval	M17 materials
	preventive	processing
	scheduled maintenance	
	time in service	

manlifts - USE E55 underground mining equipment

manpower - USE P05 personnel

man testing - USE T05 testing

markings - USE 00L labeling

M10 materials and supplies	<u>UF</u>	<u>RT's</u>
	construction	C05 carbon compounds
	materials	(mining
	consumables	applications)
	delivery	M35 coal mining
	inventories	BT I20 coal industry
	materials for	C39 construction
	components	E77 explosives
	parts	F15 fluids
	stores	M15 materials
	supplies	handling
		M17 materials
		processing
		M20 materials
		recovery
		M21 materials storage
		P15 pipes

materials for components - USE M10 materials and supplies



M15 materials handling	<u>UF</u> conveyors hoisting hoppers packaging rough handling shipment of materials	<u>RT's</u> HA0 haulage M10 materials and supplies BT T35 transport
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M17 materials processing	<u>UF</u> chemical treatment coating conditioning dressing galvanizing heat treatment impregnation pressure treatment rust proofing steaming vulcanization waterproofing	<u>RT's</u> M00 maintenance procedures BT M10 materials and supplies
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materials recall - USE OAR recall

M20 materials recovery	<u>UF</u> recycling	<u>RT's</u> BT M10 materials and supplies
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M21 materials storage	<u>UF</u> magazines shelf life	<u>RT's</u> S55 coal storage E77 explosives BT M10 materials and supplies OCS security 15W working conditions
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materials testing - USE T05 testing

maximums - USE S36 specifications

medical centers - USE O0M industrial medicine

medical impact - USE 00I impact

methane - USE F20 gas fuels

M25 methane	<u>UF</u> coal gas firedamp gassy mines in-mine gas	<u>RT's</u> BT 50E explosions
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methane detectors - USE 40E safety and health equipment

MHD generators - USE B10 burners

MHSA approval label - USE 00L labeling

mills - USE E60 preparation equipment

mine abandonment - USE 10M abandoned mines

mine collapse - USE 00A accidents

mine drainage - USE D05 drainage

mine maps - USE 05R reports and records

mine-month generating plants - USE P30 power plants

05M mine permit areas

RT's  
BT R17 rights of entry

mineral fuels - USE F25 solid and liquid fuels

mineral resources - USE R15 resources

M30 mineral rights

RT's  
BT R17 rights of entry

mineral wastes - USE 20P land pollution

mine rehabilitation - USE 00R reclamation

mine rescue - USE 10R rescue operations

mine roadways - USE M40 surface coal mining

S15 mine siting

RT's  
BT LA0 land

miners - USE P05 personnel

mines - USE E80 extraction

minimums - USE S36 specifications

mining engineering - USE E80 extraction

misfires - USE OAF equipment failure

mist extractors - USE E45 laboratory equipment

modifications - USE 41E equipment certifications

15M monitoring

UF  
checking

RT's  
05D detection  
BT 25E environment  
Q00 quality control  
S00 sampling  
T05 testing

mountaintop removal - USE M40 surface coal mining

mounting - USE I24 installation certifications

naphtha - USE B00 coal-derived bituminous materials

natural gas - USE F20 gas fuels

N00 nitrogen compounds

RT's  
BT B05 blasting  
E77 explosives

nitroglycerine - USE E77 explosives

OAN nitrous oxide

RT's  
BT 10P air pollution

noise exposure - USE 00N noise levels

00N noise levels

UF  
noise exposure  
noise pollution  
noise-sensitive areas

RT's  
BT 05H hazards  
15P pollution

noise pollution - USE 00N noise levels

noise-sensitive areas - USE 00N noise levels

non-combustibility - USE 15F flammability

non-explosion proof - USE 50E explosions

non-explosive wrapper - USE B05 blasting

non-flammability - USE 15F flammability

non-gelatinous explosives - USE E77 explosives

notice - USE H00 hearings

notification - USE 05R reports and records  
occupational disease - USE 20D diseases  
oil burners - USE B10 burners  
operating instructions - USE 00L labeling  
operating rules - USE 00L labeling  
operating space envelope - USE 15H human factors design  
operating temperature - USE H05 heat  
operational procedures - USE 0AS safe practices  
operators - USE P05 personnel  
operator protection - USE 42E safety features on equipment  
operator qualification - USE 05T training  
operator training - USE 05T training  
organic sulfur - USE S50 sulfur  
organic wastes - USE 05W wastes  
orphaned lands - USE LA0 land  
overburden - USE M40 surface coal mining

000 oxygen

RT's  
BT H10 HVAC

packaging - USE M15 materials handling  
packed bed - USE B10 burners  
pager - USE E30 communications equipment  
paleontology - USE 00S protected sites  
particle size - USE P00 particles  
particle suspension - USE P00 particles

P00 particles

UF  
particle size  
particle  
suspension  
particulate matter

RT's  
D09 coal dust  
BT 25D dust control

particulate matter - USE P00 particles

parts - USE M10 materials and supplies

pathogenesis - USE 20D diseases

pathogens - USE 20D diseases

pathology - USE 20D diseases

payback period - USE E05 economics

PA0 payments and fees

RT's

E25 enforcement

BT F11 finance

P04 permits

05L licenses

P01 penalties

UF

sanctions

RT's

BT E25 enforcement

V06 violations

performance criteria - USE S36 specifications

OBP permissibility

UF

permissible

equipment

permissible materials

permissible personal

gear

permissible supplies

RT's

50E explosions

BT 40E safety and health

equipment

permissible equipment - USE OBP permissibility

permissible materials - USE OBP permissibility

permissible personal gear - USE OBP permissibility

permissible supplies - USE OBP permissibility

P04 permits

UF

posting

revocation

RT's

BT A20 approval

05L licenses

41E equipment

certification

15C certification

P05 personnel

	<u>UF</u>	<u>RT's</u>
	certified personnel	T5C certification
	experience	20C claims
	government	BT I20 coal industry
	employees	E20 employment
	manpower	18I inspectors
	miners	05T training
	operators	15W working
	professional	conditions
	personnel	
	qualifications	
	qualified operators	
	test subjects	
	uncertified personnel	

personnel examination - USE T05 testing

O1R personnel rehabilitation

	<u>UF</u>	<u>RT's</u>
	employee transfer	BT E20 employment
	vocational	
	rehabilitation	

physical examination - USE 10H health services

P15 pipes

	<u>RT's</u>
	BT M10 materials and
	supplies

pipeline corridor - USE S75 surface rights

pitch - USE B00 coal-derived bituminous materials

placement - USE 15H human factors design

P20 planning

	<u>UF</u>	<u>RT's</u>
	blueprints	C39 construction
	production plans	00P plans
	schedules	BT P45 production

00P plans

	<u>UF</u>	<u>RT's</u>
	accident prevention	P20 planning
	plans	BT OAS safe practices
	disaster response plans	
	evacuation plans	
	health plans	

planting - USE 20R revegetation

plastique - USE E77 explosives

platforms - USE C39 construction

plats - USE 05R reports and records



05P pneumoconiosis	<u>UF</u> black lung black lung benefits	<u>RT's</u> BT 20D diseases 25D dust control
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poisonous gases - USE 05H hazards

polarity - USE E10 electricity

15P pollution	<u>UF</u> contamination pollution abatement pollution control prevention of significant deterioration purification stationary pollutant sources washout	<u>RT's</u> 10P air pollution BT 25E environment F10 filters 20P land pollution 00N noise levels 30P pollution control agencies 35E pollution control equipment 25P water pollution 05W wastes 05I impact analysis T05 testing
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pollution abatement - USE 15P pollution

pollution control - USE 15P pollution

30P pollution control agencies	<u>RT's</u> BT 15P pollution
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35E pollution control equipment	<u>UF</u> catalytic convertors descaling dust collectors electrostatic precipitation electrostatic precipitators scrubbers scrubbing	<u>RT's</u> BT E40 equipment 15P pollution 15S support facilities
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35P populations	<u>UF</u> fauna flora human livestock vegetative cover	<u>RT's</u> BT 25C communities 00E ecology 10F fish and wildlife
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posting - USE P04 permits

power circuit - USE 10E electrical systems

P30 power plants

UF

fossil fuel power  
plants  
mine-mouth generating  
plants

RT's

B10 burners  
C37 combustion  
byproducts  
T00 combustion  
temperature control  
BT M05 coal markets  
E10 electricity  
S40 stacks  
S10 power plant  
siting  
P35 power  
transmission  
H05 heat  
U00 electric  
utilities

S10 power plant siting

RT's

BT LA0 land  
P30 power plants

P35 power transmission

RT's

BT E10 electricity  
P30 power plants

E60 preparation equipment

UF

concentrating tables  
crushers  
dryers  
inclined screen jigs  
magnets  
mills  
pulverizers

RT's

C30 coal preparation  
BT E40 equipment

pressure flushing - USE M45 underground coal mining

pressure regulators - USE E40 equipment

pressure testing - USE T05 testing

pressure treatment - USE M17 materials processing

prevention of significant deterioration - USE 15P pollution

preventive maintenance - USE M00 maintenance procedures

preventive medicine - USE 10H health services

private utilities - USE U00 electrical utilities

P45 production

UF  
production  
statistics

RT's  
BT M35 coal mining  
E80 extraction  
E70 exploitation  
E75 exploration  
C39 construction  
P20 planning

production plans - USE P20 planning

production statistics - USE P45 production

professional personnel - USE P05 personnel

proof load - USE T05 testing

propagation - USE B05 blasting

propellant - USE E77 explosives

property seizure - USE S75 surface rights

prospecting - USE E75 exploration

protected habitat - USE 00H habitat

00S protected sites

UF  
archeological  
sites  
paleontology

RT's  
BT 20P land pollution

protections - USE 42E safety features on equipment

40P protective clothing

UF  
face masks  
helmets

RT's  
F10 filters  
BT 40E safety and health  
equipment

45P public health

RT's  
BT 00M industrial  
medicine

public utilities - USE U00 electrical utilities

pulverizers - USE E60 preparation equipment

pulverizing - USE C30 coal preparation

purification - USE 15P pollution

pyritic sulfur - USE S60 sulfur

P50 pyrolysis	<u>UF</u> pyrolysis products pyrolytic oils	<u>RT's</u> <u>C15</u> chemical reactions BT P40 coal processing
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pyrolysis products - USE P50 pyrolysis

pyrolytic oils - USE P50 pyrolysis

qualifications - USE P05 personnel

qualified operators - USE P05 personnel

quality assurance - USE Q00 quality control

Q00 quality control	<u>UF</u> quality assurance quality requirements	BT <u>RT's</u> <u>T5M</u> monitoring T05 testing
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quality requirements - USE Q00 quality control

radiators - USE H05 heat

radio - USE E30 communication equipment

radiometric surveys - USE E75 exploration

rail bed - USE T40 rail transport

T40 rail transport	<u>UF</u> hopper cars locomotives railbed rolling stock	BT <u>RT's</u> <u>T35</u> transport
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rain - USE W05 weather

rate of detonation - USE B05 blasting

rated capacity - USE S36 specifications

rated load - USE S36 specifications

reapproval - USE A20 approval

OAR recall	<u>UF</u> equipment recall materials recall	BT <u>RT's</u> <u>OAM</u> maintenance
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recharge - USE 10W water

OOR reclamation	UF backfilling contouring grading highwall reduction mine rehabilitation subsidence control topsoiling	RT's BT 20P land pollution 20R revegetation
record retention - USE 05R reports and records		
record review - USE 05R reports and records		
recycling - USE M20 materials recovery		
reflectors - USE 40E safety and health equipment		
registration - USE 05R reports and records		
remote sensing - USE E75 exploration		
RAO repairs	UF Teaks	RT's BT OAM maintenance
reporting of results - USE 05R reports and records		
05R reports and records	UF accident reports MHSA approval list expression of results letters mine maps notification plats record retention record review registration reporting of results	RT's BT E25 enforcement OAS safe practices
10R rescue operations	UF mine rescue	RT's BT D00 disaster response technology
RB0 research		RT's BT T05 testing
research grants - USE F05 federal assistance programs		
R05 residues	UF coal refuse	RT's 25A ash C37 combustion byproducts BT 05W wastes



resistors - USE 10E electrical systems

resource assessment - USE R15 resources

resource conservation - USE 30C conservation

resource depletion - USE R15 resources

resource development - USE R15 resources

resource potential - USE R15 resources

resource recovery facilities - USE R15 resources

#### R15 resources

<u>UF</u>	<u>RT's</u>
allocation	BT <u>R10</u> coal resources
energy resources	30C conservation
mineral resources	
resource assessment	
resource depletion	
resource development	
resource potential	
resource recovery	
facilities	
water resources	

respirable air - USE A05 air

#### 15R respiration

<u>UF</u>	<u>RT's</u>
breath	BT <u>H10</u> HVAC
exhalation	
inhalation	
respiratory systems	

respirator components - USE 40E safety and health equipment

respirators - USE 40E safety and health equipment

respiratory devices - USE 40E safety and health equipment

respiratory system diseases - USE 20D diseases

respiratory systems - USE 15R respiration

retirement - USE E20 employment

20R revegetation

UF  
cultivation  
grazing  
fertilization  
planting  
seeding  
sodding  
soil preparation  
species introduction

RT's  
BT 20P land pollution  
00R reclamation

revocation - USE P04 permits

right of way - USE S75 surface rights

R17 rights of entry

RT's  
BT L05 legal aspects  
05M mine permit areas  
M30 mineral rights  
S75 surface rights  
W01 water rights

risk assessment - USE E05 economics

roads - USE T50 truck transport

rock bursts - USE R20 rocks

rock drills - USE R20 rocks

rock dusting - USE M45 underground coal mining

rock mechanics - USE R20 rocks

R20 rocks

UF  
rock bursts  
rock drills  
rock mechanics  
sedimentary rocks

RT's  
G25 geological  
structures  
BT LA0 land

rolling stock - USE T40 rail transportation

roll-over bars - USE 42E safety features on equipment

roll-over protective structures (ROPS) - USE 42E safety features on equipment

roof bolting - USE M45 underground coal mining

roof control - USE M45 underground coal mining

rough handling - USE M15 materials handling

rubbish - USE 05H hazards

R25 rulings

RT's  
BT A20 approval

runoff - USE 10W water

run-of-mine coal - USE C20 coal

runways - USE C39 construction

rust proofing - USE M17 materials processing

safeguards - USE 42E safety features on equipment

safe location of workers - USE OAS safe practices

safe locations - USE I24 installation of equipment

safe operations - USE OAS safe practices

OAS safe practices

UF

operational  
procedures  
safe location of  
workers  
safe operations  
signaling safe  
conditions  
technical procedures

RT's

BT I20 coal industry  
05D detection  
D00 disaster response  
technology  
20D diseases  
05H hazards  
00M industrial  
medicine  
00P plans  
05R reports and  
records  
42E safety features  
on equipment  
15W working  
conditions

safe work place - USE 15W working conditions

40E safety and health  
equipment

UF

air monitors  
alarm devices  
alarm systems  
brakes  
circuit-interrupting  
devices  
dust, mist and fume  
respirators  
dust collectors  
dust samplers

RT's

BT E40 equipment  
00L labeling  
0BP permissibility  
40P protective  
clothing  
15W working  
conditions  
42E safety features  
on equipment

40E safety and health  
equipment continued

indicators  
flame detectors  
flame safety lamps  
gas masks  
interlocks  
life support systems  
lightning rods  
methane detectors  
reflectors  
respirator components  
respirators  
respiratory devices  
safety flashlight  
safety lamps  
smoke detectors  
supplied air respirators  
tactile indicators  
timer  
visible gauges  
warning devices

42E safety features on  
equipment

UF  
cut-off valves  
enclosures  
falling-object  
protective  
structures (FOPS)  
guards  
intrinsic safety  
limiters  
locking devices  
operator protection  
protections  
roll-over bars  
roll-over protective  
structures (ROPS)  
safeguards

RT's  
OOL labeling  
BT 40E safety and health  
equipment  
OAS safe practices

safety flashlight - USE 40E safety and health equipment

safety lamps - USE 40E safety and health equipment

sample preparation - USE S00 sampling

samplers - USE E45 laboratory equipment

samplers - USE S00 sampling

samples - USE S00 sampling

S00 sampling

UF  
bias  
sample preparation  
samples

RT's  
BT 15M monitoring  
T05 testing

sanctions - USE P01 penalties

sand - USE S30 soils

sapropelic coal - USE C20 coal

scaffolding - USE C39 construction

scheduled maintenance - USE M00 maintenance procedures

schedules - USE P20 planning

schools - USE 25C communities

screening - USE C30 coal preparation

scrubbers - USE 35E pollution control equipment

scrubbing - USE 35E pollution control equipment

OBS seasonal restrictions

RT's  
BT 25E environment

seat index point - USE 15H human factors design

OCS security

UF  
closure  
gating  
locked storage  
locking  
locks

RT's  
M21 materials storage  
BT 15W working  
conditions

sedimentary rocks - USE R20 rocks

sedimentation - USE S30 soils

sediments - USE G20 geologic deposits

seeding - USE 20R revegetation

seepage - USE M45 underground coal mining

seismic events - USE E00 earthquakes

shaft excavations - USE M45 underground coal mining



shelf life - USE M21 materials storage

shelter holes - USE M45 underground coal mining

shields - USE E55 underground mining equipment

T45 ship transport

RT's  
BT T35 transport

shipment of materials - USE M15 materials handling

shock waves - USE B05 blasting

shortwall - USE M45 underground coal mining

shot firer - USE B05 blasting

signal circuit - USE 10E electrical systems

signalling devices - USE E30 communications equipment

signaling safe conditions - USE OAS safe practices

S05 sintering

RT's  
BT P40 coal processing

size - USE S36 specifications

sizing - USE C20 coal preparation

slag - USE C37 combustion byproducts

slope stability - USE 20P land pollution

S20 sludges

RT's  
BT C37 combustion  
byproducts

S25 slurries

RT's  
BT C20 coal  
T35 transport

slurry pipelines - USE P10 coal pipelines

small business - USE E05 economics

smog - USE 10P air pollution

smoke detectors - USE 40E safety and health equipment

smoke - USE 10P air pollution

snow - USE W05 weather

social impact - USE 00I impact

social services - USE 25C communities

sodding - USE 20R revegetation

soil preparation - USE 20R revegetation

S30 soils

UF  
sand  
sedimentation

RT's  
BT G20 geological  
deposits  
LAO land

F25 solid and liquid fuels

UF  
boiler fuels  
fossil fuels  
fuel gas  
fuel slurries  
interchangeability  
liquid fuels  
mineral fuels  
suspension

RT's  
BT C20 coal  
F20 gas fuels  
H15 hydrocarbons  
F30 synthetic fuels

S35 solvent extraction

UF  
SRC I  
SRC II  
SRC III

RT's  
BT P40 coal processing  
C25 solvent-refined  
coal

C25 solvent-refined coal

RT's  
BT C20 coal  
S35 solvent  
extraction

soot - USE 10P air pollution

space envelope - USE S36 specifications

sparks - USE 05H hazards

species introduction - USE 20R revegetation

S36 specifications

UF  
capacity  
description  
design  
drawings  
energy absorption  
factor  
limits  
limits of error

RT's  
BT C40 contracts

spoil banks - USE 20P land pollution  
 spontaneous combustion - USE 00F fires  
 SRC I - USE S35 solvent extraction  
 SRC II - USE S35 solvent extraction  
 SRC III - USE S35 solvent extraction  
 stack disposal - USE 10P air pollution

BT RT's P30 power plants

BT RT's T05 testing

UF	RT's
steam generation	BT H05 heat
steam generators	
steam lines	

stemming - USE S52 stemming devices

stemming device wrappers - USE S52 stemming devices

S52 stemming devices

UF  
stemming  
stemming device  
wrappers

RT's  
BT B05 blasting  
E77 explosives

stockpiles - USE S55 coal storage

stockpiling - USE S55 coal storage

stoichiometry - USE B10 burners

stokers - USE B10 burners

stores - USE M10 materials and supplies

storms - USE W05 weather

strata - USE G25 geological structures

sub-bituminous coal - USE C20 coal

subsidence - USE M45 underground coal mining

subsidence control - USE 00R reclamation

sulfate sulfur - USE S60 sulfur

S60 sulfur

UF  
organic sulfur  
pyritic sulfur  
sulfate sulfur  
sulfur compounds  
sulfur content  
sulphur

RT's  
BT 10P air pollution

sulfur content - USE S60 sulfur

sulfur compounds - USE S60 sulfur

sulfur removal - USE 10P air pollution

sulphur - USE S60 sulfur

supplied air respirators - USE 40E safety and health equipment

supplies - USE M10 materials and supplies

S70 supply and demand

RT's  
BT E05 economics

15S support facilities

RT's  
BT M35 coal mining  
E30 communications  
equipment  
E10 electricity  
E45 laboratory  
equipment  
35E pollution control  
equipment

support pillars - USE M45 underground coal mining

supports - USE M45 underground coal mining

surface air - USE A05 air

surface buildings - USE C39 construction

M40 surface coal mining

UF  
area mining  
auger mining  
bucket and wheel  
excavations  
contour mining  
mine roadways  
mountaintop removal  
overburden  
steep slope operations  
surface mining

RT's  
BT M35 coal mining  
E50 surface mining  
equipment

D10 surface dust

RT's  
BT 25D dust control

surface mining - USE M40 surface coal mining

E50 surface mining  
equipment

UF  
backhoes  
draglines

RT's  
BT E40 equipment  
M40 surface coal  
mining

S75 surface rights

UF  
eminent domain  
land entries  
pipeline corridor  
property seizure  
right of way

RT's  
BT R17 rights of entry

surface temperature - USE H05 heat

surface water - USE 10W water



surveys - USE E75 exploration  
 survivors - USE 20I health insurance  
 suspensions - USE F25 solid and liquid fuels  
 switches - USE 10E electrical systems  
 symbols - USE 00L labeling  
 symptoms - USE 20D diseases

F30 synthetic fuels

RT's  
 BT C20 coal  
 F25 solid and liquid  
 fuels

tactile indicators - USE 40E safety and health equipment  
 tamping - USE B05 blasting  
 tar - USE B00 coal-derived bituminous materials  
 technical procedures - USE OAS safe practices  
 telephone devices - USE E30 communications equipment  
 temperature gradients - USE T00 combustion temperature control  
 temperature measurement - USE T00 combustion temperature control  
 termination - USE E20 employment  
 test failure - USE OAF equipment failure  
 test instruments - USE T05 testing  
 test subjects - USE P05 personnel

T05 testing

<u>UF</u>	<u>RT's</u>
bench testing	05D detection
field testing	F00 federal test
man testing	procedures
materials testing	E45 laboratory
personnel examination	equipment
pressure testing	15M monitoring
proof load	BT 15P pollution
test instruments	Q00 quality control
	R80 research
test instruments	S00 sampling
	I00 impact shock
	S45 static loads

T10 thermal conductivity

BT RT's  
H05 heat

T15 thermal degradation

RT's  
E61 equipment  
degradation  
BT H05 heat

thermal effects - USE 25P water pollution

T20 thermal fatigue

RT's  
BT H05 heat

T25 thermodynamic properties

RT's  
BT H05 heat

threshold limit values - USE 0AT threshold values

0AT threshold values

UF  
acceptable  
concentrations  
allowable  
concentrations  
threshold limit value  
BT RT's  
20D diseases  
55E exposure limits

timbers - USE C39 construction

timers - USE 40E safety and health equipment

time in service - USE M00 maintenance procedures

tipple - USE 20P land pollution

TNT - USE E77 explosives

tolerances - USE S36 specifications

topsoiling - USE 00R reclamation

torbanite - USE C20 coal

toxic atmospheres - USE 00T toxins

toxic materials - USE 00T toxins

00T toxins

UF  
antitoxins  
toxic atmospheres  
toxic materials  
BT RT's  
05H hazards  
30I irritants

trailing cables - USE E35 electrical equipment

05T training	<u>UF</u>	<u>RT's</u>
	cardio-pulmonary	BT <u>D00</u> disaster response
	resuscitation	technology
	training	P05 personnel
	CPR training	
	education	
	first aid training	
	operator qualification	
	operator training	
	training aids and	
	simulators	

training aids and simulators - USE 05T training

tramp metal removal - USE C30 coal preparation

T35 transport	<u>UF</u>	<u>RT's</u>
	bulk shipping	T30 barge transport
		BT I20 coal industry
		P10 coal pipelines
		S55 coal storage
		HA0 haulage
		M15 materials
		handling
		T40 rail transport
		T45 ship transport
		S25 slurries
		T50 truck transport

trace element contamination - USE P40 coal processing

tremors - USE E00 earthquakes

triage - USE 05F first aid

trolley feeder wires - USE E35 electrical equipment

T50 truck transport	<u>UF</u>	<u>RT's</u>
	roads	BT <u>T35</u> transport

tunneling - USE M45 underground coal mining

tunnels - USE M45 underground coal mining

uncertified personnel - USE P05 personnel

M45 underground coal mining

UF

controlled  
cave-ins  
escapeways  
hydraulic mining  
longwall  
pressure flushing  
rock dusting  
roof bolting  
roof control  
seepage  
shaft excavations  
shelter holes  
shortwall  
subsidence  
support pillars  
supports  
tunneling  
tunnels  
underground mining

RT's

BT M35 coal mining  
E55 underground  
mining equipment

underground disposal - USE 00W waste management

underground explosions - USE B05 blasting

underground mining - USE M45 underground coal mining

E55 underground mining  
equipment

UF

advance conditions  
sensors  
belt conveyors  
boring machines  
coal plows  
continuous miners  
impact ripping  
machines  
instrument-controlled  
vehicles  
lamps  
longwall conveyors  
manlifts  
shields

RT's

BT E40 equipment  
M45 underground coal  
mining

underground storage - USE S55 coal storage

V00 vapors

UF

fumes

RT's

BT T0P air pollution

variances - USE A20 approval

vegetative cover - USE 35P populations

V05 ventilation	<u>UF</u> air circulation ventilation barriers ventilation systems ventilation vents	<u>RT's</u> BT H10 HVAC
ventilation barriers - USE V05 ventilation		
ventilation systems - USE V05 ventilation		
ventilation vents - USE V05 ventilation		
V06 violations	<u>UF</u> complaints	<u>RT's</u> BT E25 enforcement P01 penalties
visible gauges - USE 40E safety and health equipment		
visibility - USE 15H human factors design		
visual acuity - USE 0AP human physical requirements		
V10 volatility		<u>RT's</u> BT 00F fires 15F flammability
voltage - USE E10 electricity		
vocational rehabilitation - USE 01R personnel rehabilitation		
vulcanization - USE M17 materials processing		
warning devices - USE 40E safety and health equipment		
warning labels - USE 00L labeling		
washing - USE C30 coal preparation		
washout - USE 15P pollution		
waste disposal USE 00W waste management		
waste heat - USE H05 heat		
00W waste management	<u>UF</u> underground disposal waste disposal waste processing waste processing plants waste product utilization waste storage waste transportation	<u>RT's</u> E80 extraction BT 05W wastes



waste processing - USE 00W waste management  
waste processing plants - USE 00W waste management  
waste product utilization - USE 00W waste management  
waste storage - USE 00W waste management  
waste transportation - USE 00W waste management  
waste water - USE 10W water

05W wastes	<u>UF</u>	<u>RT's</u>
	gaseous wastes	BT 15P pollution
	industrial wastes	R05 residues
	liquid wastes	00W waste management
	organic wastes	

10W water	<u>UF</u>	<u>RT's</u>
	acid rain	BT 25E environment
	aquifers	25P water pollution
	drainage basin	
	drawdown	
	drinking water	
	feedwater	
	floods	
	groundwater	
	hydrology	
	irrigations	
	recharge	
	runoff	
	surface waters	
	waste water	
	water demand	
	water quality	
	water removal	
	water rights	
	watersheds	
	water treatment	
	water treatment plants	

water demand - USE 10W water

25P water pollution	<u>UF</u>	<u>RT's</u>
	impounding reservoirs	D05 drainage
	thermal effects	05E effluents
	water pollution	H05 heat
	abatement	L10 leaching
	water pollution	BT 15P pollution
	control	10W water
	water pollution	
	monitors	

water pollution abatement - USE 25P water pollution

water pollution control - USE 25P water pollution

water pollution monitors - USE 25P water pollution

waterproofing - USE M17 materials processing

water quality - USE 10W water

water removal - USE 10W water

water resources - USE R15 resources

water rights - USE 10W water

W01 water rights

RT's  
BT R17 rights of entry

water treatment - USE 10W water

water treatment plants - USE 10W water

watersheds - USE 10W water

W05 weather

UF  
atmospheric  
precipitations  
hail  
lightning  
rain  
snow  
storms  
wind

RT's  
BT 25E environment

weathering - USE 20P land pollution

weight - USE S36 specifications

weight of apparatus - USE 15H human factors design

wildlife - USE 10F fish and wildlife

wind - USE W05 weather

wiring - USE 10E electrical systems

witnesses - USE L05 legal aspects

15W working conditions

UF  
confined spaces  
enclosed areas  
hot work

RT's  
BT I20 coal industry  
D00 disaster response  
technology  
15H human factors  
design  
00L labeling  
L25 lighting systems  
M21 materials storage  
P05 personnel  
OAS safe practices  
40E safety and health  
equipment  
OCS security

20W workers compensation

RT's  
20C claims  
E20 employment  
BT I26 insurance

W10 working fluids

UF  
antifreeze  
hydraulic fluids

RT's  
BT F15 fluids

workmanship - USE S36 specifications

wounds - USE 10I injuries

wrapper-to-explosive ratio - USE B05 blasting

wrappers - USE B05 blasting

zone of danger - USE 05H hazards

U.S. DEPT. OF COMM. <b>BIBLIOGRAPHIC DATA SHEET</b> (See instructions)		1. PUBLICATION OR REPORT NO. NBSIR 81-2405	2. Performing Organ. Report No.	3. Publication Date December, 1981
4. TITLE AND SUBTITLE  Coal Taxonomy Thesaurus of Terms				
5. AUTHOR(S) Alan D. Davies, A. Philip Cramp				
6. PERFORMING ORGANIZATION (If joint or other than NBS, see instructions)  NATIONAL BUREAU OF STANDARDS DEPARTMENT OF COMMERCE WASHINGTON, D.C. 20234			7. Contract/Grant No.	
			8. Type of Report & Period Covered Final	
9. SPONSORING ORGANIZATION NAME AND COMPLETE ADDRESS (Street, City, State, ZIP)  US Department of Energy Office of Quality Assurance and Standards EP-35 Washington, DC 20545				
10. SUPPLEMENTARY NOTES  <input type="checkbox"/> Document describes a computer program; SF-185, FIPS Software Summary, is attached.				
11. ABSTRACT (A 200-word or less factual summary of most significant information. If document includes a significant bibliography or literature survey, mention it here)  This report contains a thesaurus to help public and private users find and retrieve information on regulations and standards which apply both to coal technologies and coal-related environmental, safety and health issues. Document indexers may also find it helpful. The thesaurus was designed to be structurally compatible with the document storage and retrieval systems now in use by the Department of Energy (DOE) so that absorption into DOE's system could be convenient and practical. The arrangement of the thesaurus, the code system that represents the terms used in the indexing and search processes, and instructions for its use are described. The hierarchies of index terms in the thesaurus are illustrated.				
12. KEY WORDS (Six to twelve entries; alphabetical order; capitalize only proper names; and separate key words by semicolons)  coal; environment; health; index; safety; taxonomy; technology; thesaurus; terms				
13. AVAILABILITY  <input checked="" type="checkbox"/> Unlimited <input type="checkbox"/> For Official Distribution. Do Not Release to NTIS <input type="checkbox"/> Order From Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.  <input type="checkbox"/> Order From National Technical Information Service (NTIS), Springfield, VA. 22161			14. NO. OF PRINTED PAGES  15. Price	

